

Amendments to the Claims:

The listing of claims below will replace all prior versions, and listings, of claims in the application:

1-35. (Canceled).

36. (Previously Presented) A method of estimating velocity ahead of a drill bit disposed in a subsurface region, comprising:

obtaining surface seismic data for a region of interest using a plurality of surface-located seismic sources and a plurality of surface-located seismic receivers;

during drilling of a borehole traversing the subsurface region, determining a travel time of a seismic wave generated from a surface of the region to a location in the borehole when the drill bit is at selected depths in the borehole;

determining a velocity from the travel time and the selected depths; and

inverting the surface seismic data obtained using the plurality of surface-located seismic sources and receivers to determine a velocity ahead of the drill bit while constraining velocity between the surface and the drill bit to be consistent with the velocity determined from the travel time.

37. (Previously Presented) The method of claim 36, further comprising transforming the velocity ahead of the drill bit into pore pressure of a region ahead of the drill bit.

38. (Previously Presented) The method of claim 36, wherein the seismic wave is generated by a seismic source positioned near an opening of the borehole.

39. (Previously Presented) The method of claim 36, wherein determining the travel time of the seismic wave comprises detecting the seismic wave from at least one seismic receiver at a location in the borehole.

40. (Previously Presented) The method of claim 39, wherein the seismic receiver is disposed in a downhole tool near the drill bit.

41. (Previously Presented) The method of claim 39, wherein determining the travel time further comprises measuring the arrival time of the seismic wave detected at the seismic receiver and determining the travel time from the arrival time.

42. (Previously Presented) The method of claim 41, wherein measuring the arrival time comprises sending the seismic wave detected in the borehole to the surface and processing the detected seismic wave at the surface to determine arrival time.

43. (Previously Presented) The method of claim 41, wherein measuring the arrival time comprises processing the seismic wave detected in the borehole to determine the arrival time and sending the arrival time to the surface via telemetry.

44-54. (Canceled).